

**OS/2 Part II: The
New World Order
for Computers**

**Connecting Novell
NetWare to MVS**

**Improving Network
Efficiency Through Data
Stream Optimization**

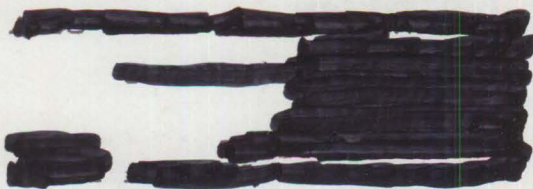
INFORMATIONTM TECHNOLOGIES

MAINFRAME CONNECTIVITY TO DISTRIBUTED ENVIRONMENTS

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**Industry Outlook: An Interview With
Novell's Bernard Harguindeguy**

FROM THE EDITOR

Dear Reader,

Thank you for your encouraging comments in regard to the magazine's new title, *Information Technologies*, and to its expanded editorial focus.



Information Technologies provides corporate computing professionals information focused on system interoperability, connectivity, client/server, open systems and other new technologies. Based on the early response we have received, we sense these are the areas you as a reader are searching for direction, information and answers.

More and more companies now realize that information technology (IT) strategies have to tie in closer with business strategies. They actually should influence each other. This concept replaces many traditional IT planning activities with one requiring a highly integrated combined management process. No longer is the IT planning process one that occurs after strategic business plans have been laid out, but rather one that should be a concurrent activity blending emerging technology with the strategic direction of the company.

Therefore, using the combination of IT strategies and business objectives, they could influence the business objectives of the company and its supporting infrastructures. It is important to now understand how to integrate business needs through new technologies and across multiple platforms, systems and networks.

The editorial makeup of *Information Technologies* is driven by the demand for easily accessible information focused on enterprise-wide computing solutions. Articles

help educate computing professionals by presenting new techniques and shortcuts, and by taking them through projects step-by-step. What computing responsibilities are you now faced with? Have they dramatically changed? What additional, or new, computing technologies is your company contemplating? I invite you to share your comments, ideas and suggestions for future topics.

During upcoming months, *Information Technologies* will present a wide range of topics that will assist computing professionals who are responsible for their company's entire information processing infrastructure. Such topics include: network design and management, client/server strategies, report distribution, optical storage, workstation technologies, configuration management, LAN security, network automation, distributed network operating systems (NOSs), large-site performance and tuning, WAN installation and many more mission-critical business computing themes.

As you know, *Information Technologies* is a free publication (domestically), so I encourage you to tear out the subscription card and pass it on to one of your colleagues. Perhaps they too could benefit from learning about multi-platform computing as it relates to connectivity, interoperability, client/server, communications and standardization.

Thanks for reading *Information Technologies*.

Sincerely,

Thomas Sprague
Editor

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OS/2

Part 2

The New World Order for Computers

By Robert L. Crauford

Last month, we began to explore IBM's new PC operating system, OS/2 Release 2.0. This final article will examine some of the other desktop services and functions provided by OS/2.

Endless Features

The one big advantage of OS/2 2.0 is the way the user interacts with the hardware. The keyboard is used to enter characters, but pointing devices, such as a mouse, track ball or touch screen, are used to control the active applications. The display attributes for the applications, session settings and copying portions of one application to another are all accomplished by a pointing device. This new object-oriented system, or Graphical User Interface (GUI), allows the display monitor to be easily partitioned off into multiple concurrent sessions or windows.

In the past, text-based, menu-driven applications were standard fare. These types of applications are still at the heart of most IS applications, but users' expectations are being raised. The ability to easily switch between different applications without having to sign off of one and onto the other is one common demand. Mainframe VTAM session management software is an acceptable solution in a 3270 terminal environment. If DOS-based PCs are used, 3270 terminal emulation software allows multiple sessions. Either of these two solu-

tions enables the users to switch between host-based applications via a "Hot Key" combination that swaps to another session. To take this to another level of productivity, OS/2 provides the capability to size multiple windows so they are displayed concurrently on the display monitor. In addition to host-based applications, a user can have a PC LAN-based application in another window. The OS/2 Communication Manager can also be configured to access an AS/400 or ASCII midrange platform computer. This capability of providing a user access to any combination of mixed platform-based applications will give corporations the ability to deliver an integrated solution to the desktop.

Additional Functions: Cut and Paste

Anyone familiar with ISPF/PDF's capabilities of manipulating data with LINE COMMANDS appreciates the power of being able to copy and move a line or blocks of lines around in the session. This ability will be dimmed by the capabilities of an OS/2 environment. By marking data in the active or foreground session and then cutting it, the data is moved to a storage buffer. This buffer, or clip board, is then available to paste from into any session. A scenario will help demonstrate the potential of this capability.

Let's imagine we have the task of putting together some operator training on a new automated operations

package that is being implemented. The classroom guide is being developed with a word processing package. All of the overview and introductory fluff is entered and now it's time to move into the detailed explanation of the new product. To explain how to move around in the new automated operations application, a few examples of the screens are needed. With the cut and paste capabilities, you can easily insert the screens by selecting the Communications Manager 3270 session from the background of the OS/2 desktop. With the Communications Manager window now brought to the foreground, click the right mouse button on the session ICON in the upper right corner of the windows Title Bar. Now click on "MARK" from the displayed menu and proceed to highlight the area of the display you wish to capture. Again, click on the title bar ICON and select "CUT". The screen image is now in the clipboard buffer. Select the window that the word processing application is in to move it to the foreground and click on its title bar ICON. When "PASTE" is selected, the contents of the clipboard buffer are copied into the document and you have a perfect screen image included in your training material. This manipulation of data between different sessions makes sharing pieces of data very easy.

Editor for Presentation Manager

Anyone who has fumbled around in DOS' EDLIN program will appreciate that OS/2 has a full-screen editor included. The editor is invoked from the Productivity folder or from an OS/2 command prompt. By entering "E filename.xtn" from the OS/2 command prompt, the specified file is opened for editing. There is also an enhanced presentation manager editor invoked by entering "EPM filename.xtn" at an OS/2 command prompt. The enhanced editor has search and

replace capabilities that make tasks such as editing all references to a disk drive in a batch file a snap. You can draw lines and boxes in a text file. There is a sort capability on the entire file or only a selected marked-off portion. By placing the mouse pointer at the beginning of the text you wish to select and pressing the left button, the area you drag the mouse over will be

marked off. Now click on the "Command" and enter "SORT". The selected area is still marked-off, so click on "Edit" and then "Unmark". This enhanced editor also provides some math capabilities. Decimal, octal and hexadecimal expressions can be entered by selecting "Command" and entering "MATH expression". The result of the expression is reported at the bottom

MARKETPLACE

Pushing The Limits of Technology

It takes something out of the ordinary to make MCI the #1 most effective user of information systems.

For some time, MCI Telecommunications has been setting records in long distance business, as well as setting the industry standard for others to meet. So it comes as no surprise that our Systems Engineering function has always been on the cutting edge as well. Computer World magazine has selected MCI as outstanding information systems users for the 4th consecutive year.

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Our Systems Engineering Division houses five data centers nationally with some of the most sophisticated systems to challenge your professional abilities. This mission-critical, multi-platform environment is comprised of twelve ES9000 and three 3090 mainframes with multiple OS/2 client servers and mid-range systems with 3600+ ESA MIPS, 13+ TBS DASD and 180 CICS regions, all of which is controlled out of our Colorado Springs location. Join the group that supports crucial systems functions and see how you can push the envelope of today's technology.

MVS/ESA Systems Programmers • CICS Systems Programmers

Individuals must possess specialties in one or more of the following areas: MVS/ESA, DFP/ESA, CICS/ESA, IMS/ESA, DB2, ADABAS, RACF, CA-1, CA-7, Teleview, VTAM, Netview, NDM, JES2/ESA, the Omegamon family of monitors SMP/E, IPCS, TSO/E, ISPF and SDSF. Additionally, the selected candidates will possess demonstrated project management experience and excellent problem diagnostic abilities. Excellent written and oral communication skills needed.

DASD Technical Specialist

Selected applicants should be able to diagnose and resolve storage related issues, as well as possess expertise in large DASD environments and in the use of storage software and tools such as: SMS, DFDSS, DFHSM, STOPX37, DFP internals, POOL DASD, BEST1 and Omegamon. Knowledge of the latest advances in DASD hardware technology also required.

Capacity Planning Specialist

The ideal candidate will possess demonstrated experience in large IBM mainframe capacity planning. Be a part of ongoing architectural strategy for one of largest and most dynamic mainframe computing platforms in the country. Must have a background in requirements analysis, cost/benefits analysis, hardware planning, new hardware evaluations, tactical and strategic planning, as well as vendor negotiations. Additional practical experience with SAS, MICS or MXG also required.

RACF Systems Security Specialist

This position necessitates senior-level expertise in large IBM Systems Security with the ability to develop complex logic designs and specifications using COBOL, CICS and RACF. Chosen individual must be able to identify and resolve the most complex technical programming problems and provide specialized technical guidance in the areas of Systems Security and specifically RACF.

Database Administrators/Specialists

Mid- to Senior-level DB2 expertise in database administration, work experience in supporting production systems, DB2 performance and tuning, as well as backup and recovery background required. Application design experience a plus.

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of the window. Follow a number with a "X" for hex and an "O" for octal in the expression. If you want the result reported in hexadecimal, enter "MATHX", or in octal, enter "MATHO". As these features demonstrate, we've come a long way from EDLIN.

Productivity Applications Provided

PM Terminal: OS/2 Release 2.0 provides a presentation manager application for accessing BBS systems via a modem. The NaSPA, Inc. NaSCOM BBS will be used as a sample for configuring the parameters to establish a communication session. The session is multitasking so your word processing application can be printing a large mail merge document while you scan through the dialogs on NaSCOM.

Select the OS/2 System ICON and then the PRODUCTIVITY folder.

From this folder, select the PM Terminal ICON. A predefined list of

some common systems such as CompuServe and IIN are provided. They all serve as good examples for any system you need a model for to customize your own selection. To define a session for NaSCOM, click on "SESSION", then "ADD". Select terminal type DEC VT100, then select the proper connection path

COMx port and settings of 8,1,NONE. I use the file transfer type of "X-MODEM 1K".

The one big advantage of OS/2 2.0 is the way the user interacts with the hardware. The keyboard is used to enter characters, but pointing devices, such as a mouse, track ball or touch screen, are used to control the active applications.

Click on the "OPTIONS" button and select the initial size of the window for this session. I select Window for a medium size; it can be minimized or maximized as needed later. After the initial session set up, click on "FILE", then "CONNECT" and enter the telephone number 1-800-846-2772. The telephone number will be saved as part of the profile after it is entered in this initial setup. By selecting "CONNECT", a communication session will be established with the NaSCOM BBS. Normal interactions are now available in this session. To accomplish file uploads and downloads, click on "FILE" and then "SEND" or "RECEIVE". This presentation manager application is great for using on large file transfers. You can begin the file transfer and then select another window to work in. With PMTERM running in the background, you are accomplishing the file transfer without limiting the PC to this one task.

Calculator: Use a full-function calculator with memory store and print capabilities. I suggest dragging it out on to the desktop so you have convenient access to it at all times.

Spreadsheet and Data Base: These may be good to introduce you to the concepts, but unfortunately, neither one is versatile enough even to be compared to the leading vendor offerings on the market.

FIGURE 1: A SAMPLE REXX PROCEDURE THAT FUNCTIONS AS A CALCULATOR

```
/* REXX */trace o
/* CALC EXEC      ProTech (513) ???-????? Mini-Lab#4 */

/* This EXEC provides an online calculator
   using the built-in arithmetic features
   of the REXX language. The INTERPRET
   instruction tells REXX to perform the
   operation. */

say ''
say 'REXX CALCULATOR ACTIVE!   ENTER CALCULATION:'
say ''
say ' Use x2d(num), d2x(num), etc. for conversions. '
say ''
say ' ENTER: QUIT to TERMINATE EXECUTION. '
say ''

calc_loop:
do forever
  parse pull input
  if abbrev('QUIT',input,1) then leave
  else do
    say ''
    say ''
    say '===== '
    interpret say input
    say ''
    say ''
    say 'ENTER Calculation or Quit:'
    end /* else do */
  end /* do forever */
exit /* terminate CALC EXEC      Mini-Lab#4 */
```


Daily Planner and Calendar: These applications are a nice demonstration of PM usage, but I find it much more convenient to work out of my Pocket Day-Timer. If you are investigating these types of packages, try working with them for a few weeks. Like the spreadsheet and data base applications, these are good examples and you can get a good feel for what features you would like in a marketed product.

Pulse: This line graph of the CPU utilization is right up your alley if you do performance and capacity planning. It is a real-time display of system activity with no archive or historical data storage.

ICON Editor: This is a great little tool for building personal ICONS for applications or file folders. Like any graphics package, you can burn up a lot of time picking colors and content. You can usually edit or design a suitable ICON for your folders from scratch.

Seek and Scan Files: If you can't find a file, or forget what the file name of the document is, this is an indispensable tool. Searches can be performed across all subdirectories for a given file name. If you know the content of a document, but can't remember the file name, a text search can be done. If you let this text search span all subdirectories, it can take quite a long time, but the search can be moved to the background and you can continue to work in another window.

All of This and REXX Too!

OS/2 also provides an environ-

ment complete with REXX. REXX was introduced in 1983 with Release 3 of VM/SP and became the SAA-compliant procedural language. There are a few differences in the OS/2 version that require retrofitting procedures developed for a mainframe environment. One of the most noticeable differences is in the statement's need to perform I/O operations.

Some subtle differences in migrating procedures are made up for by providing some OS/2-specific capabilities.

PMREXX: This is a presentation manager session to execute your REXX procedures from. It provides a GUI application session that has TRACE capabilities. You invoke the TRACE by entering PMREXX /T REXXFILE.CMD. The trace option lets you monitor a REXX program as it is executed. To demonstrate PMREXX, use Figure 1 as a simple REXX procedure that functions as a calculator. When you have used it, upload it to your mainframe or AS/400 platform to demonstrate the interoperability of this language. One of the nice features of PMREXX is its ability to save the results of the REXX execution to a file. For the CACL.CMD example, the results to the expression are stored. For tracing and debugging a new procedure, this save capability may prove to be useful in diagnosing problems. If a REXX error message is encountered, enter "HELP REX#####" at the OS/2 command prompt and an explanation of the error will be listed.

This presentation manager envi-

ronment for REXX provides some nice features. The "RXMESSAGE-BOX" command gives you the capability to display a presentation manager selection menu box from your procedure. You pass parameters to specify the title, text and selection buttons that will be presented and what ICON will be displayed. Figure 2 shows a sample use of this presentation manager feature. Invoke the procedure from an OS/2 command prompt by entering "PMREXX MSGBOXIF.CMD".

REXXTRY: This is a provided REXX procedure file that allows you to try individual REXX statements and get the results. It is invoked by entering "REXXTRY 'the REXX statement you want interpreted'" and pressing <ENTER>.

By combining PMREXX and REXXTRY, you establish a nice environment to experiment with REXX statements.

Summary

Hopefully this look at OS/2 has sparked your interest in this new PC operating system if you have not used it. If you have OS/2, I hope you picked up a new hint or tip to use. I welcome your thoughts and questions on this article. Please contact me in care of this magazine.

FIGURE 2: PMREXX

```
/*
  this will display a pop-up window and ask for a
  decision from the user
*/
call RxFuncAdd 'SysLoadFuncs','RexxUtil','SysLoadFuncs'
call SysLoadFuncs
IF RxMessageBox(Are you ready to mess everything up?,WARNING,YesNo,Question) = 6
  then say "YOU SELECTED YES"
  else say "YOU SELECTED NO"
```

Robert L. Crawford is a free-lance writer and systems programming consultant. He works for Shaner Consultants in Dayton, Ohio, where he is primarily responsible for LAN, host and multi-vendor systems integration.

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